

Remarks

The above Amendments and these Remarks are in reply to the outstanding Office Action mailed September 6, 2005 (Office Action). Claims 1-47 are presented herewith for consideration. Claims 1-47 are amended. Certain claims have been amended to correct grammar, typographical errors and/or antecedent basis.

The disclosure is objected to because of informalities. Typographical errors have been corrected and it is therefore respectfully requested that the objection to the disclosure be withdrawn.

Claims 6-10, 13-14, 18-20, 23-24 and 41-47 are objected to because of informalities. The informalities have been corrected and it is therefore respectfully requested that the objection to claims 6-10, 13-14, 18-20, 23-24 and 41-47 be withdrawn.

Claims 5 and 10 are rejected under 35 U.S.C. §112 as failing to comply with the enablement requirement.

Claims 15-20 are rejected under 35 U.S.C. §102(a) as being anticipating by "admitted prior art" (*APA, Fig. 2*).

Claims 1, 3-4, 6, 8-9, 11-14 and 25-47 are rejected under 35 U.S.C. §103(a) as being unpatentable over *APA, Fig. 2* in view of *Waters* (U.S. Patent No. 5,479,457).

Claims 2 and 7 are rejected under 35 U.S.C. §103(a) as being unpatentable over *APA, Fig. 2* in view of *Waters* as applied to claims 1 and 6, and further in view of *Brandt* (U.S. Patent 5,859,550).

Claims 21-24 are rejected under 35 U.S.C. §103(a) as being unpatentable over *APA, Fig. 2* in view of *Brandt*.

I. Rejection of Claims 5 and 10 under 35 U.S.C. §112

Claims 5 and 10 are rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the enablement requirement. While the applicant's attorney disagrees with the Examiner's rejection of claims 5 and 10 under 35 U.S.C. §112, first paragraph, claims 5 and 10 have been amended to expedite prosecution.

Accordingly, it is respectfully requested that the Examiner withdraw the rejection of claims 5 and 10 under 35 U.S.C. §112, first paragraph.

II. Rejection of Claims 15-20 under 35 U.S.C. §102(a)

Claims 15 and 18 are rejected under 35 U.S.C. §102(a) as being anticipating by *APA, Fig. 2*.

Claim 15 calls for “generating a plurality of clock signals...the clock signals having different propagation delays.... compensating the digital control values with the correction values to account for the different propagation delays of the clock signals.”

APA, Fig. 2 does not illustrate “generating a plurality of clock signals...the clock signals having different propagation delays...” There are no illustrations in Fig. 2 or description in the Background of clock signals CLK1 and CLK2 “having different propagation delays...”

Further, in rejecting claim 15 based on *APA, Fig. 2*, the Examiner stated in the outstanding Office Action at page 3: “the detect signal 30 comprising the correction values derived by the element 30 [sic, 31] from the digital control values PHASE1 ... and PHASE2...” However, “detect signal 30” as described by the Examiner, does not “compensat[e] the digital control values [or phase control values PHASE1 and PHASE2 of *APA, Fig. 2*] ... to account for the different propagation delays of the clock signal.”

Claims 16-17 depend from claim 15 and therefore are patentable for at least the reasons stated above in regard to claim 15.

Claim 18 calls for “the clock signals having different propagation delays... the one or more correction values being used subsequent to the calibration procedure to account for the different propagation delays of the clock signals.”

Thus, similar to the reasons in regard to claim 15, claim 18 is likewise patentable.

Claims 19-20 depend from claim 18 and therefore are patentable for at least the reasons stated above in regard to claim 18.

Accordingly, it is respectfully requested that the Examiner withdraw the rejection of claims 15-20 under 35 U.S.C. §102(a).

III. Rejection of Claims 1, 3-4, 6, 8-9, 11-14 and 25-47 Under 35 U.S.C. §103(a)

Claims 1, 3-4, 6, 8-9, 11-14 and 25-47 are rejected under 35 U.S.C. §103(a) as being unpatentable over *APA, Fig. 2* in view of *Waters*.

The applicant’s attorney respectfully disagrees. Claim 1 calls for “comparing the first and second digital control values to detect a phase relationship between the first and second clock signals.” (Emphasis added.)

In rejecting claims 1 and 6, the Examiner stated:

It is well known that the phase detector having the logic to compare the phases of the signals inputted, as the Admission (Fig. 2) having the phase detector, [sic,] it [sic, It] would have been obvious to a [sic] one of ordinary skill in the art at the time the invention was made to have the phase detection logic taught by Water implemented in the element 31 of the Admission to compare the phase values to detect the phase relationship...(Emphasis added, Office Action, dated October 19, 2004, page 6).

However, a description of *APA, Fig. 2* states:

Phase detection circuit 31 compares clock signals CLK1 and CLK2 to determine whether the phase of CLK2 relative to CLK1 is greater than 90°. (Emphasis added, Application, page 3, lines 7-8).

Thus, it would not have been obvious to one of ordinary skill in the art at the time of the invention to substitute the “phase detection circuit 31” of *APA, Fig. 2* with the “phase detection latch 40” of *Waters* because *APA, Fig. 2* discloses that “phase detection circuit 31” compares clock signals and not “digital control values” as called for in claim 1. *APA, Fig. 2* teaches away from comparing digital values as disclosed in *Water* by “compar[ing clock signals] CLK1 and CLK2 to determine ...the phase of CLK2 relative to CLK1...” and not “digital control values” that “establish” phases of “first and second clock signals.”(Application, page 2, lines 7-8).

Claims 3 and 4 depend from claim 1 and therefore are patentable for at least the reasons stated above in regard to claim 1.

Claim 6 calls for “a phase detection logic to compare the first and second digital control values to detect a phase relationship between the first and second clock signals” and therefore is patentable for similar reasons stated above in regard to claim 1.

Claims 8 and 9 depend from claim 6 and therefore are patentable for at least the reasons stated above in regard to claim 6.

Claim 11 calls for “evaluating the phase control value to detect a measured phase relationship of the received clock signal relative to the reference clock signal.”

In rejecting claim 11, the Examiner stated:

Fig. 2, the APA discloses...a phase detection circuit element 31 (the evaluation logic), but the APA does not specify the logic to evaluate the phases values. However, Waters teaches the digital phase detector element 40 in Figure 4...[I]t would have been obvious to a [sic]one of ordinary skill in the art at the time of the invention was make [sic, made] to have the phase detection logic taught by Water implemented in the element 31 of the APA to compare the phase values to detect a phase relationship between two clock signals...(Emphasis added) Office Action, page 10-11.

As described above in regard to claim 1, *APA, Fig. 2 teaches away* from comparing digital values as disclosed in *Waters* by “compar[ing clock signals] CLK1 and CLK2 to determine ...the phase of CLK2 relative to CLK1...” Phase detector element 40 as disclosed by *Waters* could not be “implemented” in “phase detection circuit 31” of *APA, Fig. 2* because “phase detection circuit 31” has clock signals as inputs. “Phase control value PHASE1” or “phase control value PHASE2” could not be “evaluat[ed]” by “phase detection circuit 31” because these phase control values are not even inputted to “phase detection circuit 31.”

Claim 12 depends from claim 11 and therefore is patentable for at least the reasons stated above in regard to claim 11.

Claim 13 calls for “an evaluation logic to evaluate the phase control value to detect a phase relationship between the received clock signal and the reference clock signal” and therefore is patentable for at least similar reasons stated above in regard to claim 11.

Claim 14 depends from claim 13 and therefore is patentable for at least the reasons stated above in regard to claim 13.

Claim 25 calls for “evaluating the input phase control value to determine a timing phase to clock the captured data signal for synchronization with the target timing signal” and therefore is patentable for at least similar reasons stated above in regard to claim 11.

Claims 26-33 depend from claim 25 and therefore are patentable for at least the reasons stated above in regard to claim 25.

Claim 34 calls for “setting a target phase control value...setting an input phase control value...comparing the target phase control value and the input phase control value to determine a timing phase to clock the captured data signal for synchronization with the target clock signal...” and therefore is patentable for at least similar reasons stated above in regard to claim 1.

Claims 35-40 depend from claim 34 and therefore are patentable for at least the reasons stated above in regard to claim 34.

Claim 41 calls for “an evaluation logic to evaluate the input phase control value to determine a timing phase to clock the captured data signal for synchronization with the target clock signal” and therefore is patentable for at least similar reasons stated above in regard to claim 11.

Claims 42-47 depend from claim 41 and therefore are patentable for at least the reasons stated above in regard to claim 41.

Accordingly, it is respectfully requested that the Examiner withdraw the rejection of claims 1, 3-4, 6, 8-9, 11-14 and 25-47 under 35 U.S.C. §103(a).

IV. Rejection of Claims 2 and 7 under 35 U.S.C. §103(a)

Claims 2 and 7 are rejected under 35 U.S.C. §103(a) as being unpatentable over *APA*, *Fig. 2* in view of *Waters* as applied to claims 1 and 6, and further in view of *Brandt*.

Claims 2 and 7 depend from claims 1 and 6 and therefore are patentable for at least the reasons stated above in regard to claims 1 and 6.

Accordingly, it is respectfully requested that the Examiner withdraw the rejection of claims 2 and 7 under 35 U.S.C. §103(a).

V. Rejection of Claims 21-24 under 35 U.S.C. §103(a)

Claims 21-24 are rejected under 35 U.S.C. §103(a) as being unpatentable over *APA*, *Fig. 2* in view of *Brandt*.

Amended claim 21 calls for “varying the phase control value to obtain a digital PVT adjustment value that provides a predetermined phase relationship between the delayed measurement clock signal and the reference clock signal...” (Emphasis added).

In rejecting claim 21, the Examiner stated:

APA, *Fig. 2* discloses...but does not specify the PVT adjustment. However, *Brandt* teaches the PVT compensated circuit in the clock distribution system in FIGA [sic, Fig. 4]...This modified device has the PVT circuit being responsive to the PVT adjustment value which is the output of the element 510 Phase Detector FIG.5'550 to compensate the variations. Office Action, page 13-14.

However, *Brandt* discloses that “phase detector (PD) circuit 510” outputs an analog voltage to “loop filter (LF) circuit 514” (Col. 6, lines 1-12) and not the claimed “digital PVT adjustment value...”

Claim 22 depends from claim 21 and therefore is patentable for at least the reasons stated above in regard to claim 21.

Claim 23 calls for “a calibration logic to vary the phase control value to obtain a digital PVT adjustment value...” and therefore is patentable for at least similar reasons stated above in regard to claim 21.

Claim 24 depends from claim 23 and therefore is patentable for at least the reasons stated above in regard to claim 23.

Accordingly, it is respectfully requested that the Examiner withdraw the rejection of claims 21-24 under 35 U.S.C. §103(a).

VI. Conclusion

Based on the above amendments and these remarks, reconsideration of claims 1-47 is respectfully requested.

The Examiner's prompt attention to this matter is greatly appreciated. Should further questions remain, the Examiner is invited to contact the undersigned attorney by telephone.

The Commissioner is authorized to charge any underpayment or credit any overpayment to Deposit Account No. 501826 for any matter in connection with this response, including any fee for extension of time, which may be required.

Respectfully submitted,

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By:



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